

## Effect of feed withdrawal and transportation on *Salmonella enterica* infection in market-weight pigs

Rostagno, M.H.\*, Eicher, S.D., Lay Jr., D.C.

USDA, ARS, Livestock Behavior Research Unit, 125 S. Russell Street, West Lafayette, IN 47907, USA.

\*Corresponding author: [Marcos.Rostagno@ars.usda.gov](mailto:Marcos.Rostagno@ars.usda.gov)

### Abstract

A study was conducted to determine if two common pre-slaughter stressors, feed withdrawal and transportation, affect the levels of *Salmonella* in infected market pigs. A total of 60 market-weight pigs (220 – 240 lbs.) were individually inoculated (intranasally;  $10^5$  cfu/mL) with *Salmonella enterica* serovar Typhimurium. The experiment was replicated 3 times with 20 pigs per replicate. Individual fecal samples were collected to confirm establishment of the infection (3 samples per pig) prior to treatment assignment. Three days post-challenge, pigs were randomly assigned to 4 treatments (5 pigs per treatment), including; 1) control or no stress, 2) feed withdrawal for 12 hours, 3) transportation for 2 hours, and 4) feed withdrawal for 12 hours and transportation for 2 hours. Following treatments, pigs were subjected to euthanasia and necropsy for collection of ileal, cecal and rectal contents, and mesenteric lymph nodes. All samples were processed for the isolation and enumeration of *Salmonella*. No difference between treatments was found on the frequency of *Salmonella*-positive samples. Feed withdrawal by itself or followed by transportation caused significant increase in *Salmonella* concentrations in ileal contents ( $P < 0.05$ ). Only an interaction between feed withdrawal and transportation caused numerical increase of *Salmonella* concentration in cecal contents. Rectal contents (i.e., feces) consistently contained very low concentrations of *Salmonella* regardless of the treatment. This study reveals which elements of typical pre-slaughter practices lead to greater intestinal *Salmonella* concentrations in market pigs.